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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,465	11/21/2003	Alexandre Corjon	245498US41XDIV	8127
22850	7590	09/08/2006	EXAMINER	
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			HOLZEN, STEPHEN A	
			ART UNIT	PAPER NUMBER
			3644	

DATE MAILED: 09/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/717,465	Applicant(s) CORJON ET AL.	
	Examiner Stephen A. Holzen	Art Unit 3644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 3-5, 14-16, 20-22 and 29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 6-13, 17-19, 23-28, 30 and 31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                   | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/7/2005</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Response to Arguments***

1. Claims 1-31 are pending.
2. Claims 3-5, 14-16, 20-22 and 29 are withdrawn.
3. Claims 1, 2, 6-13, 17-19, 23-28, 30 and 31 have been examined.
4. This application contains claims 3-5, 14-16, 20-22 and 29 drawn to an invention nonelected with traverse. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.
5. Claim 1 only has one method step element. This step is “generating a period perturbation adjacent an area of creation of the first eddy”.
6. The examiner re-asserts that the phrase “excites” is a desired outcome of the “generating” step. The limitation “excites” is not an individual method step. The limitation “excites” is limiting only in the sense that the prior art method steps must be capable of exciting the at least one instability mode to read on the limitation. It is the examiner’s position that Yuan teaches this capability.
7. It is unclear as to how much weight should be afforded to the phrase “predetermined” as it modifies the phrase “wavelength”.

Therefore the examiner has provided a 102/103 rejection.

If the phrase “predetermined” is not an active method step (i.e. it does not limit the “generating” step) then this claim limitation is anticipated. It should be appreciated that the examiner does not believe that the phrase “predetermined” actively limits the generating step, and only limits the claim in as much as the wavelength must be predeterminable.

If the phrase “predetermined” implies an active step of predetermining the proper wavelength that is capable of exciting the least one internal instability mode of the core of the first eddy, then this claim limitation is rendered obvious is since it would have been obvious to one having ordinary skill in the art to select the desired perturbation wavelength for its intended use.

8. It is unclear as to how much weight should be afforded to the phrase “excites at least one internal instability mode of a core of the first eddy”.

Therefore the examiner has provided a 102/103 rejection.

If it is held that the phrase “excites” is –a desired outcome of the “generating” step-- then this limitation is anticipated by Yuan. It should be

appreciated that it is the examiner's position that: the limitation "excites" is not an individual method step and is limiting only to the capability of excitation.

If it is held that the phrase "excites" is an active method step then the examiner has cited Bilanin et al to provide evidence that it is well known in the art that applying the appropriate time varying disturbance into an eddy will excite the eddy's instabilities.

It should be appreciated that the examiner rejected claim 28 in a similar manner. The phrase "induce" is only limited to the capability of inducing. The claim reads as follows: "wherein the first and second periodic perturbation are capable of inducing an increase in core diameters of the co-rotating eddies".

9. The examiner asserts that all claim elements and limitations have been addressed and have been afforded proper weight.
10. Applicant has argued that Ortega et al does not qualify as a reference because it was not published until April 2002. The examiner agrees with this assertion and will not use it as evidence as what was known prior to applicant's earliest effective filing date.
11. Applicant has argued that a method claim can be limited by the location in which the method step is being performed. The examiner finds this argument partially

persuasive. The examiner agrees that the location in which the method step is being performed should be afforded patentable weight, but does not agree that the claims as presently written are allowable in view of Yuan.

12. The examiner withdraws the comments regarding claims 11 and 12 in light of applicant's discussion (see paragraph 6 of the Non-Final Office Action mailed on 2/16/2006) without withdrawing or changing the rejection.

***Claim Rejections - 35 USC § 103***

***and/or***

***Claim Rejections - 35 USC § 102***

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1-2, 6-10, 18,19, 23-28, 30 and 31 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yuan (3,936,013).

Re – claims 1, 7, 10 and 31: Yuan teaches an aircraft having two fixed wings (11) on each side of the fuselage (12). As the aircraft moves through the air, the wings cause the air to move such that they form vortices behind the aircraft. Yuan then goes on to disclose a tube (21) for blowing a jet of fluid through an orifice 22. The extended tube is attached to the wing 11 and at least a portion thereof extends therein (see Figure 2). Fluid from the fluid source enters a conduit 23 and ejects from an orifice opening 22.

Yuan teaches that the location of the extended tube can designed according to the configuration of the wing planform which would allow the vortex control system to operate most efficiently for a given configuration of the wings. (see Col. 3, lines 63+ - Col. 4, lines 3.) Yuan further teaches that the extending tube may be attached to the wing tip at a location anywhere between the leading and trailing edges (see Col. 4, lines 16-18) and that it is desirable to have jet mass flow along the extended tube varying in accordance with the vortex velocity variations to improve the efficiency of the fluid usage (see Col. 2, lines 37-42).

It is the examiner's position that Yuan teaches the active step of generating a perturbation.

In the alternative if the claim language is such that the phrases "predetermined" and "excite" limit the phrase "generating", then the following rejection is appropriate:

Yuan teaches every limitation (as defined above) except the steps of (1) the capability of predetermining the wavelength and (2) the capability of exciting at least one internal instability mode of a core of the first eddy.

It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). The wavelength is an optimum value. It would have been obvious to one to select a wavelength such that it is capable of exciting at least one internal instability mode of a core of the first eddy for the purpose of increasing the safety of the craft.

Re – Claim 2: the phrase "in the area adjacent a flap of the wing" is extremely broad and is read on by any device attached to the aircraft.

Re – Claim 6: the phrase "emitting a jet of fluid from the area adjacent the flap of the wing" is extremely broad and is read on by any device that is attached to the aircraft.

Re – Claim 8: the applicant has not defined what the velocity of the fluid is being measured against. The velocity of the aircraft in relation to the earth? The velocity of the aircraft in relation to the wind? The examiner asserts that momentarily the velocity of the fluid as it is emitted from the jet would have a velocity relative to the pilot (a person on the aircraft) that would have a velocity at least equal to (greater than) relative velocity of the aircraft. (It should be appreciated that the velocity of the aircraft relative to the pilot should be zero, when the pilot is not moving).

Re – Claim 9: Yuan teaches that one of ordinary skill in the art can emit the jet of fluid from a wing (see figure 2 and 3 that illustrate the fluid coming from the wing)

Re – Claims 18, 23, and 27: Yuan discloses a perturbation that is capable of corresponding to the vortex's Benard-von Karman instability.

Re – Claims 19, 25 and 30: Yuan disclose a perturbation that is capable of inducing an increase in three-dimensional elliptic instabilities.

Re – claim 24: Yuan discloses generating the fluid from within the flap and emitting it there out.

Re – Claim 26: the jet of fluid is emitted orthogonally (at least parallel to) the flow around the wing, where the instantaneous velocity of the fluid is at least equal to the velocity of the aircraft relative to the pilot.

Re – claim 28: wherein the first and second periodic perturbations are capable of inducing an increasing in core diameters of the co-rotating eddies.

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16. Alternatively (if the phrase “excites” is an active method step, not merely being limited to a capability.) Claim 1-2, 6-10, 18,19, 23-28, 30 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan (3,936,013) in view of Bilanin et al (6,042,059).

Re – claims 1, 7, 10 and 31: Yuan teaches an aircraft having two fixed wings (11) on each side of the fuselage (12). As the aircraft moves through the air, the wings cause the air to move such that they form vortices behind the aircraft. Yuan then goes on to disclose a tube (21) for blowing a jet of fluid through an orifice 22. The extended tube is attached to the wing 11 and at least a portion thereof extends therein (see Figure 2). Fluid from the fluid source enters a conduit 23 and ejects from an orifice opening 22.

Yuan teaches that the location of the extended tube can be designed according to the configuration of the wing planform which would allow the vortex control system to operate most efficiently for a given configuration of the wings. (see Col. 3, lines 63+ - Col. 4, lines 3.) Yuan further teaches that the extending tube may be attached to the wing tip at a location anywhere between the leading and trailing edges (see Col. 4, lines 16-18) and that it is desirable to have jet mass flow along the extended tube varying in accordance with the vortex velocity variations to improve the efficiency of the fluid usage (see Col. 2, lines 37-42).

It is the examiner's position that Yuan teaches the active step of generating a perturbation.

In the alternative if the claim language is such that the phrases "predetermined" and "excite" limit the phrase "generating", then the following rejection is appropriate:

Yuan teaches every limitation (as defined above) except the steps of (1) the capability of predetermining the wavelength and (2) the capability of exciting at least one internal instability mode of a core of the first eddy.

Bilanin et al (6,042,059) teach that the destruction of vortices is "enhanced by introducing time-varying disturbances" which "excite the instabilities" associated with an eddy. The goal of the excitation is to produce a time-varying motion in the position of the centroid of eddies of one or more vortex pairs at particular frequencies to start a process that leads to rapid break up of the vortices. Excitation of the centroid is particularly effective for a destruction of a vortex wake. (see Col. 4, lines 42-51).

If it is held that the phrase "excites" is an active method step then the examiner relies on Bilanin et al to provide evidence that it is well known in the art that applying the appropriate time varying disturbance into an eddy will excite the eddy's instabilities; therefore it would have been obvious to one having ordinary skill in the

art at the time the invention was made to predetermine the wavelength that excites at least one internal instability mode of a core of the first eddy to increasing the safety of the aircraft.

Re – Claim 2: the phrase “in the area adjacent a flap of the wing” is extremely broad and is read on by any device attached to the aircraft.

Re – Claim 6: the phrase “emitting a jet of fluid from the area adjacent the flap of the wing” is extremely broad and is read on by any device that is attached to the aircraft.

Re – Claim 8: the applicant has not defined what the velocity of the fluid is being measured against. The velocity of the aircraft in relation to the earth? The velocity of the aircraft in relation to the wind? The examiner asserts that momentarily the velocity of the fluid as it is emitted from the jet would have a velocity relative to the pilot (a person on the aircraft) that would have a velocity at least equal to (greater than) relative velocity of the aircraft. (It should be appreciated that the velocity of the aircraft relative to the pilot should be zero, when the pilot is not moving).

Re – Claim 9: Yuan teaches that one of ordinary skill in the art can emit the jet of fluid from a wing (see figure 2 and 3 that illustrate the fluid coming from the wing)

Re – Claims 18, 23, and 27: Yuan discloses a perturbation that is capable of corresponding to the vortex's Benard-von Karman instability.

Re – Claims 19, 25 and 30: Yuan disclose a perturbation that is capable of inducing an increase in three-dimensional elliptic instabilities.

Re – claim 24: Yuan discloses generating the fluid from within the flap and emitting it there out.

Re – Claim 26: the jet of fluid is emitted orthogonally (at least parallel to) the flow around the wing, where the instantaneous velocity of the fluid is at least equal to the velocity of the aircraft relative to the pilot.

Re – claim 28: wherein the first and second periodic perturbations are capable of inducing an increasing in core diameters of the co-rotating eddies.

17. Claims 11, 12, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan as applied to claim 10 above, and further in view of ordinary skill within the art. Yuan does not specifically disclose the diameters of the first and second vortices. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). It would have been obvious to one having ordinary skill in the art, at the time the invention was made to generate the perturbations so that their diameters are an optimum value for the purpose of actively destroying vortices for the purpose of increasing passenger/aircraft safety.

Re – Claim 13: the phrase “in areas adjacent a flap of the wings” is extremely broad and is read on by any device attached to the aircraft.

Re – Claim 17: the jets of fluid are “adjacent” the first and second wings (see Figure 3).

18. Claims 11, 12, 13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yuan in view of Bilanin et al applied to claim 10 above, and further in view of ordinary skill within the art. Neither Yuan nor Bilanin et al disclose the diameters of the first and second vortices. It has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980). It would have been obvious to one having ordinary skill in the art, at the time the invention was made to generate the perturbations so that their diameters are an optimum value for the purpose of actively destroying vortices for the purpose of increasing passenger/aircraft safety.

Re – Claim13: the phrase “in areas adjacent a flap of the wings” is extremely broad and is read on by any device attached to the aircraft.

Re – Claim 17: the jets of fluid are “adjacent” the first and second wings (see Figure 3).

### ***Conclusion***

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen A. Holzen whose telephone number is 571-272-6903. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Teri Luu can be reached on 571-272-7045. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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A handwritten signature in black ink, appearing to read "Peter M. Poon". The signature is stylized with a large initial "P" and a long horizontal stroke at the end.

PETER M. POON  
SUPERVISORY PATENT EXAMINER

9/5/06